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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,930	04/14/2004	Hong Tian	2855/115	5294
<div><div>7590 KENYON &amp; KENYON Suite 600 333 W. San Carlos, Street San Jose, CA 95110-2711</div><div>10/29/2007</div></div>				
			EXAMINER RENNER, CRAIG A	
			ART UNIT 2627	PAPER NUMBER
			MAIL DATE 10/29/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/823,930

**Applicant(s)**

TIAN ET AL.

**Examiner**

Craig A. Renner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 2 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 17 August 2007 has been entered.

### ***Claim Objections***

2. Claims 2 and 10 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation of claim 2 has already been set forth in lines 2-3 of independent claim 1, and the limitation of claim 10 has already been set forth in lines 3-4 of independent claim 9.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 7, 9, 10, 12, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Amemiya et al. (US 6,002,550).

Amemiya et al. (US 6,002,550) teaches a slider (FIG. 13, for instance) comprising a body (1) with a width of 1.0 mm or smaller (lines 45-46 in column 8, for instance, i.e. "0.5 mm wide") and a length greater than 0.85mm (lines 45-46 in column 8, for instance, i.e. "1.0 mm deep (long)") and a thickness of 0.23mm or less (lines 45-46 in column 8, for instance, i.e. "0.2 mm or below in thickness"), wherein the length to the width ratio is greater than 1.5 (lines 45-46 in column 8, for instance, i.e., length 1.0 mm divided by width 0.5 mm gives a length-to-width ratio of 2.0); and an air-bearing surface (adjacent 1-1, for instance) to allow the slider to glide above a moving data storage medium (5) [as per claim 1]; wherein the body has a thickness of 0.23 mm or smaller (lines 45-46 in column 8, for instance, i.e. "0.2 mm or below in thickness") [as per claim 2]; wherein the length of the body is 3.0 mm or smaller (lines 45-46 in column 8, for instance, i.e. "1.0 mm deep (long)") [as per claim 4]; wherein the slider further comprises a main compression pad (1-1) extending from the air-bearing surface proximately located to a trailing edge of the air-bearing surface (as shown in FIG. 13, for instance) [as per claim 7]; and wherein the slider is a component of a disk drive (as shown in FIGS. 3-6, for instance) further comprising a data storage disk (5); and a head gimbal assembly (includes 2, for instance) to suspend the slider above the data storage disk [as per claims 9, 10, 12, and 15].

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amemiya et al. (US 6,002,550).

Amemiya et al. (US 6,002,550) teaches the slider as detailed in paragraph 4, supra. Amemiya et al. (US 6,002,550), however, remains silent as to the slider body length being "1.235 mm" and the slider body width being "0.7mm" as per claims 3 and 11.

Official notice is taken of the fact that it is notoriously old and well known in the disk drive slider art to modify the parameters of a disk drive slider during the course of routine optimization/experimentation. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the slider body length of Amemiya et al. (US 6,002,550) be 1.235 mm and the slider body width of Amemiya et al. (US 6,002,550) be 0.7mm. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the slider body length of Amemiya et al. (US 6,002,550) be 1.235 mm and the slider body width of Amemiya et al. (US 6,002,550) be 0.7mm since such values, absent any criticality (i.e., unobvious and/or unexpected result(s)), are generally achievable through routine

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optimization/experimentation, and since discovering an optimum value of a result effective variable involves only routine skill in the art, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameters set forth above would have been obvious to a person having ordinary skill in the art at the time the invention was made, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

7. Claims 5, 6, 8, 13, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amemiya et al. (US 6,002,550) in view of Koishi (US 2003/0002218).

Amemiya et al. (US 6,002,550) teaches the slider as detailed in paragraph 4, *supra*. Amemiya et al. (US 6,002,550), however, remains silent as to the slider further comprising a "U-shaped rail extending from the air-bearing surface proximately located to a leading edge of the air-bearing surface" as per claims 5 and 13, "wherein the U-shaped rail has two surfaces at differing heights, each surface parallel to the air-bearing surface" as per claims 6 and 14, and "wherein the main compression pad has two surfaces at differing heights, each surface parallel to the air-bearing surface; and further comprising two outlying compression pads straddling the main compression pad, wherein each compression pad is on a same level as one of the surfaces of the main compression pad" as per claims 8 and 16.

Koishi (US 2003/0002218) teaches a slider (FIGS. 3 and 4, for instance) comprising a U-shaped rail (includes 50, 64, and 66, for instance) extending from an air-bearing surface (includes 72, for instance) proximately located to a leading edge (28a)

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of the air-bearing surface, wherein the U-shaped rail has two surfaces (54 and 56, for instance) at differing heights (as shown in FIGS. 3 and 4, for instance), each surface parallel to the air-bearing surface (as shown in FIG. 4, for instance), and wherein a main compression pad (52) has two surfaces (58 and 60, for instance) at differing heights (as shown in FIGS. 3 and 4, for instance), each surface parallel to the air-bearing surface (as shown in FIG. 4, for instance); and further comprising two outlying compression pads (74 and 76, for instance) straddling the main compression pad (as shown in FIG. 3, for instance), wherein each compression pad is on a same level as one of the surfaces of the main compression pad (lines 3-5 in paragraph [0044] on page 4, for instance) in the same field of endeavor for the purpose of inhibiting disk collision upon loading while suppressing pitch angle increase at disk outer zones. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the slider of Amemiya et al. (US 6,002,550) further comprise a U-shaped rail extending from the air-bearing surface proximately located to a leading edge of the air-bearing surface, wherein the U-shaped rail has two surfaces at differing heights, each surface parallel to the air-bearing surface, and wherein the main compression pad has two surfaces at differing heights, each surface parallel to the air-bearing surface; and further comprising two outlying compression pads straddling the main compression pad, wherein each compression pad is on a same level as one of the surfaces of the main compression pad, as taught by Koishi (US 2003/0002218). The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the slider of Amemiya et al. (US 6,002,550) further comprise a U-shaped rail extending from the

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air-bearing surface proximately located to a leading edge of the air-bearing surface, wherein the U-shaped rail has two surfaces at differing heights, each surface parallel to the air-bearing surface, and wherein the main compression pad has two surfaces at differing heights, each surface parallel to the air-bearing surface; and further comprising two outlying compression pads straddling the main compression pad, wherein each compression pad is on a same level as one of the surfaces of the main compression pad, as taught by Koishi (US 2003/0002218) since such inhibits disk collision upon loading while suppressing pitch angle increase at disk outer zones.

8. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koishi et al. (US 6,157,518) in view of Koshikawa et al. (US 6,181,531).

Koishi et al. (US 6,157,518) teaches a slider comprising a body (any one of 50A thru 50Q, for instance) with a width of 1.0mm or smaller (lines 43-45 in column 5, for instance, i.e., "0.25-0.75 mm", for instance) and a length greater than 0.85mm (lines 43-45 in column 5, for instance, i.e., "1.25 mm", for instance), wherein the length to the width ratio is greater than 1.5 (lines 43-45 in column 5, for instance, i.e., length 1.25 mm divided by width 0.25 mm gives a length-to-width ratio of 5.0); and an air-bearing surface (includes 60, for instance) to allow the slider to glide above a moving data storage medium (20) [as per claims 1-3]; wherein the length of the body is 3.0 mm or smaller (lines 43-45 in column 5, for instance, i.e., "1.25 mm", for instance) [as per claim 4]; wherein the slider further comprises a U-shaped rail (78/82/80, as shown in FIG. 11, for instance) extending from the air-bearing surface proximately located to a leading



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edge of the air-bearing surface (as shown in FIG. 11, for instance) [as per claim 5]; wherein the U-shaped rail has two surfaces (86 and 92) at differing heights (as shown in FIGS. 15A and 15B, for instance), each surface parallel to the air-bearing surface (as shown in FIGS. 15A and 15B, for instance) [as per claim 6]; wherein the slider further comprises a main compression pad (78/82/80, as shown in FIG. 11, for instance) extending from the air-bearing surface proximately located to a trailing edge of the air-bearing surface (as shown in FIG. 11, for instance) [as per claim 7]; and wherein the slider is a component of a disk drive (as shown in FIG. 2, for instance) comprising a data storage disk (20); and a head gimbal assembly (includes 34, for instance) to suspend the slider above the data storage disk (as shown in FIG. 2, for instance) [as per claims 9-15]. Koishi et al. (US 6,157,518), however, remains silent as to the slider body thickness being "0.23 mm or less" as per claims 1-7 and 9-15, and the slider body length being "1.235 mm" and the slider body width being "0.7mm" as per claims 3 and 11.

Official notice is taken of the fact that it is notoriously old and well known in the disk drive slider art to modify the parameters of a disk drive slider during the course of routine optimization/experimentation as shown, for instance, by Koshikawa et al. (US 6,181,531), which teaches that it is within the level of ordinary skill in the art to achieve a slider body thickness of 0.23 mm or less (lines 16-19 in column 8, for instance, i.e., "the thickness thereof is 0.04 to 0.06 mm"). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the slider body thickness of Koishi et al. (US 6,157,518) be 0.23 mm or less as taught by

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Koshikawa et al. (US 6,181,531), the slider body length of Koishi et al. (US 6,157,518) be 1.235 mm and the slider body width of Koishi et al. (US 6,157,518) be 0.7mm. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the slider body thickness of Koishi et al. (US 6,157,518) be 0.23 mm or less as taught by Koshikawa et al. (US 6,181,531), the slider body length of Koishi et al. (US 6,157,518) be 1.235 mm and the slider body width of Koishi et al. (US 6,157,518) be 0.7mm since such ranges, absent any criticality (i.e., unobvious and/or unexpected result(s)), are generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (CCPA 1955). Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameters set forth above would have been obvious to a person having ordinary skill in the art at the time the invention was made, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). Furthermore, Koshikawa et al. (US 6,181,531) shows that it is within the level of ordinary skill in the art to achieve a slider body thickness of 0.23 mm or less.

#### ***Pertinent Prior Art***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Hamilton (US 5,550,691), which teaches a slider

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having a width of about 0.5 mm, a length of about 8.0 mm, and a thickness of about 0.04 mm (lines 53-57 in column 8, for instance).

### ***Response to Arguments***

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

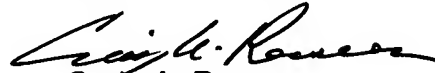
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Craig A. Renner".

Craig A. Renner  
Primary Examiner  
Art Unit 2627

CAR